Appendix A: Troubleshooting

Diagnosing Switch Indicators

The SwitchHub-7s can be easily monitored through its comprehensive front panel indicators. These indicators assist the network manager in identifying problems the switch may encounter. This section describes common problems you may encounter and possible solutions.

Symptom: CPU indicator displays a steady green light long after power on.

Cause: Defective CPU or power supply

Solution: Have your unit's CPU or power supply replaced. Ask for dealer assistance.

Symptom: Link indicator does not light up (green LED) after making a connection.

Cause: Workstation's network adapter, cable or switch port is defective.

Solution: The most common cause for a bad connection to a workstation or server is a defective network adapter or cable connection. Check the workstation's network adapter and cable connections for possible defects. Replace the defective adapter or cable.

Use the diagnostic procedures described in Chapter 2 (i.e., refer to the section on Diagnostic Display Mode) to verify that all other system components are functioning properly. If any component fails the diagnostic test, contact your Accton distributor for assistance.

System Diagnostics

Installation

Verify that all system components have been properly installed. If one or more components appear to be malfunctioning, then test them in an alternate environment where all the other components are functioning properly.

Cabling

Verify that the cabling type is correct. Be sure all cable connectors are securely seated in the required ports. Straight-through cable should be used for all standard twisted-pair connections.

1. When cascading 2 switches using RJ-45 station ports at both ends of the cable (i.e., not a daisy-chain port), make sure a crossover cable is used. Crossover cable should only be used if a daisy-chain port is not available.
2. Make sure all devices are connected to the network. Equipment may have been unintentionally disconnected from the network.

External Adapters

Make sure the network adapter cards installed in the workstations are in good working condition.

Configuration

If problems occur after altering the network configuration, restore the original connections, and try to track the problem down by implementing the new changes, one step at a time. Ensure that cable distances, repeater limits, and other physical aspects of the installation do not exceed recommendations.

Switch Integrity

As a last resort verify the switch's integrity with a power-on reset. Turn the power to the switch off and then on. If the problem still persists and you have completed all the preceding diagnoses, then contact your Accton distributor for further assistance. (Refer to Appendix E.)

Appendix B: Pin Assignments

RJ-45 Port

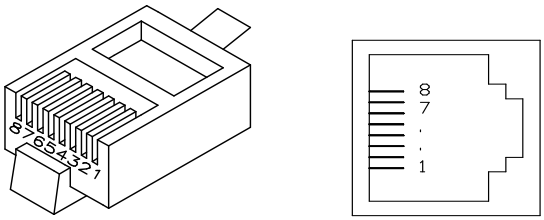


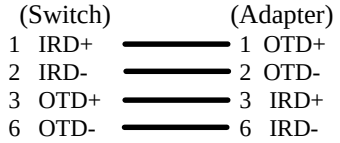
Figure B-1 RJ-45 Connector (on the Switch Side)

Pin	MDI-X Assignment Station Ports 1 ~ 7	MDI Assignment Cascade Port 7
1	Input Receive Data +	Output Transmit Data +
2	Input Receive Data -	Output Transmit Data -
3	Output Transmit Data +	Input Receive Data +
6	Output Transmit Data -	Input Receive Data -
4,5,7,8	Not Used	Not Used

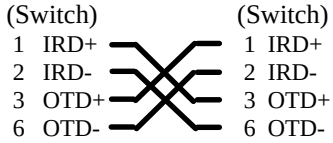
Table B-1 RJ-45 Pin Assignments

Schematics for both straight and crossover twisted-pair cable are shown below.

Straight-Through



Crossover



Appendix C: Specifications

Product Specifications

Basic Criteria

Access Method	CSMA/CD, 10/100 Mbps
Standards Conformance	IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX
Communication Mode	Full-duplex or half-duplex
Media Supported	*10BASE-T* Category 3,4,5 twisted-pair cable
	100BASE-TX Category 5 twisted-pair cable
Number of Ports	6 RJ-45 ports for 10BASE-T
	1 RJ-45 port for 10BASE-T or 100BASE-TX
Dimensions	330mm x 216mm x 43mm (13" x 8.5" x 1.69")
Input Power	Full range power input: 100 - 240V (±10%), 50 - 60 Hz (±3%)
Power Consumption	0.4 Amp at 100 VAC, 0.2 Amp at 240 VAC
Temperature	0°C to 50°C (Standard Operating)
Humidity	5% to 95% (Noncondensing)
Certification	CE Mark
Emissions	FCC Class A, VCCI Class 2, CISPR Class B
Immunity	IEC 1000-4-2,3,4, EN60555-2 Class A, EN60555-3
Safety	UL, CSA, TÜV/GS

Switching Criteria

Network Bridging Function	filtering, forwarding and learning
Switching Method	adaptive cut-through
Maximum Filtering Rate	at line speed
Maximum Forwarding Rate	at line speed
Network Latency	less than 20 microseconds
Address Table	4K entries
Queue Buffer	10 Mbps ports: 64K bytes per port
	100 Mbps port: 160K bytes

Appendix D: Standards Compliance

EMI Certification

FCC Class A

Warning: This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A digital device pursuant to Subpart B of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures are required to correct the interference.

You may use unshielded twisted-pair (UTP) for RJ-45 connections.

Warnings
1. Wear an anti-static wrist strap or take other suitable measures to prevent electrostatic discharge whenever handling this equipment.
2. When connecting this switch to a power outlet, connect the field ground lead on the tri-pole power plug to a valid earth ground line to prevent electrical hazards.

Canada Department of Communications - Class A

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus", ICES-003 of the Department of Communications.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe A prescrites dans la norme sur le matériel brouilleur : "Appareils Numérques", NMB-003 édictée par le ministère des Communications.

Voluntary Control Council for Interference (VCCI-2)

Caution.

This is a Class 2 product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

注意

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づく第二種情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取扱いをして下さい。

CE Mark Declaration of Conformance (for EMI and Safety)

This is to certify that this product complies with ISO/IEC Guide 22 and EN45014. It conforms to the following specifications:

EMC:	EN55022(1988)/CISPR-22(1985)	class B
	IEC 1000-4-2(1995)/IEC 801-2(1991)	4kV CD, 8kV AD
	IEC 1000-4-3(1995)/IEC 801-3(1984)	3 V/m
	IEC 1000-4-4(1995)/IEC 801-4(1988)	1kV - (power line) 0.5kV - (signal line)

This product complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC.

Warning!

Do not plug a phone jack connector in the RJ-45 port. This may damage the switch.

Les raccordeurs ne sont pas utilisé pour le système téléphonique!

Safety Compliance

Underwriters Laboratories Inc.

Important! Before making connections, make sure you have the correct Cord Set. Check it (read the label on the cable) against the following specification list.

Operating Voltage	Cord Set Specifications
120 Volts	UL Listed/CSA Certified Cord Set
	Minimum 18 AWG
	Type SVT or SJT three conductor cord
	Maximum length of 15 feet
	Parallel blade, grounding type attachment plug rated 15A, 125V
240 Volts (For North America)	UL Listed/CSA Certified Cord Set
	Minimum 18 AWG
	Type SVT or SJT three conductor cord
	Maximum length of 15 feet
	Tandem blade, grounding type attachment plug rated 15A, 125V
240 Volts (For Europe only)	Cord Set with H05VV-F cord having three conductors with minimum diameter of 0.75 mm^2
	IEC-320 receptacle
	Male plug rated 6A, 250V

The unit will automatically select the setting that matches the input voltage connected. Therefore, no additional adjustments are necessary when connecting it to any input voltage within the range marked on the rear panel.

Sicherheitshinweise

1. Die Steckdose muß sich in der Nähe des Gerätes befinden und leicht zugänglich sein.
2. Zum Reinigen den Stecker aus der Steckdose ziehen. Beim Reinigen keine Flüssigreiniger oder Sprays verwenden, sondern ein angefeuchtetes Tuch.
3. Das produkt gerät nicht in Naßräume oder in der Nähe von Wasser benutzen, wie z.B. Badezimmer, Schwimmbad, Spülbecken usw.. Das Eindringen von Wasser kann zur Zerstörung des Gerätes führen.
4. Das produkt gerät nicht auf einer unstabilen Unterlage, wie z.B. Rollwagen, Gestell usw., aufstellen. Es könnte herunterfallen und Verletzungen oder Beschädigungen von Mensch und Gerät verursachen.
5. Die Belüftungsöffnungen nicht blockieren oder auf falscher Ober-fläche, wie Bett, Sofa usw., stellen. Durch die Blockierung kann es zur Zerstörung des Gerätes durch Überhitzung kommen.
6. Versuchen Sie niemals dieses Gerät selbst zu warten, da beim Öffnen oder Abnehmen des Gehäuses die Gefahr eines elektrischen Schlages besteht.
7. Keine Gegenstände auf das Anschlußkabel stellen, damit es nicht durch scharfe Kanten zerstört werden kann.
8. Keinerlei Gegenstände durch die Öffungen in das Gerät stecken, da es dadurch sonst zu Kurzschlässen kommen kann.
9. Bei Störungen des Gerätes den Wartungsdienst verständigen.
10. Bei Reperaturen dürfen nur Orginalersatzteile oder Bauteile mit gleichen Eigenschaften verwendet werden. Andere Bauteile können Feuer, elektrischen Schlag oder andere Gefahren verursachen.
11. Nach Beendigung von Wartungsarbeiten oder Reperaturen durch den Kundendienst sollte die Sicherheitsprüfung durchgeführt werden.
12. Bei längerem Stillstand des Gerätes, ist diese von der Versorgungs- spannung zu trennen. Dies verhindert eine Beschädigung des Gerätes durch eine Überspannung in der Zuleitung.
13. Der arbeitsplatzbezogene Lärmschutzpegel nach DIN 45 635 ist kleiner 70dB (A).

Appendix E: Support Services

Product Registration

Fill in the Owner Registration Card and mail it to Accton Technology Corporation. Accton will keep your record and inform you of any new Accton unit developments.

Problem Report

If problems occur during unit operation, please check the adapter configuration settings, cables, connectors, network terminators, hardware compatibility and other network components.

Write a description of the problem, including what problems occurred, when they occurred, duration of the problems, the unit number, serial number, hardware, software and the DOS version that you are using. Then contact your dealer or Accton Technology Corporation for assistance.

Hardware Repair Service

You must get an RMA (Return Materials Authorization) number before returning any hardware for repair. To obtain this number please inform Accton of your company name, address, unit name and model number, contact person, telephone number, and a problem description list. If your unit is under repair warranty you must also give your purchase date. Carefully pack your hardware. If possible, use the original carton. Mark the RMA number on the carton and send it to your dealer.

After repair, Accton will inform you of the date of delivery and the exact amount due. Please send the payment by T/T (Telegram Transfer), and Accton will send you the fixed component after receiving payment. With or without warranty, if the hardware is found to be free of defects, you will only be charged for testing and handling.

Software Update and Upgrade Service

Accton constantly improves its software units by adding enhancements and new features. Minor software updates are free of charge. If greater changes have been made to the software, Accton offers software upgrade services at a specially reduced price.

Bulletin Board Service (BBS)

- In countries other than the U.S., call 886-3-5770-654 to reach Accton Taiwan's modem line. Modems with 14400 through 2400 baud are supported. Choose 8 data bits, 1 stop bit and no parity. Standard VT100 terminal emulation is supported
- In the United States, call 408-452-8828 to reach the Accton USA's BBS line. Modems with 14400 through 2400 baud are supported. Choose 8 data bits, 1 stop bit and no parity. Standard VT100 terminal emulation is supported.

Interactive Fast Fax (U.S.A. office)

Printed technical documentation can be FAX'ed to your FAX machine, 24-hours a day.

- Call 408-452-8811 to reach Accton's interactive Fast FAX service. You will need a Touch-Tone phone and a FAX machine (or equivalent). Choose document 911 for a listing of technical bulletins.

Technical Support

Your dealer or installer is the person who understands your network and Accton units. If neither is available to help you, Accton technical support engineers are available by FAX, mail or phone.

- Send your technical questions by FAX to:

  International Headquarters: 886-3-5770-267
  USA Headquarters: 408-452-8988

- To obtain software upgrades connect via ftp to ftp.accton.com.tw
- Send your technical questions by email to support@accton.com.tw
- Mail your technical questions to:

International Headquarters	**USA Headquarters**
Accton Technology Corporation Attn: Technical Support No. 1 Creation Road III Science-based Industrial Park Hsinchu 300, Taiwan, R.O.C.	Accton Technology Corporation Attn: Technical Support 1962 Zanker Road, San Jose, CA 95112, U.S.A.

During local business hours, call:

International Headquarters	**USA Headquarters**
(Monday through Friday, 8 am to 6 p.m.): 886-3-5770-270	(Monday through Friday, 7 am to 5 p.m. Pacific Time): 408-452-8900 or 800-926-9288

Limited Warranty

Accton warrants to the original owner that the product delivered in this package will be free from defects in material and workmanship for the lifetime of the product. For the warranty to apply, you must register your purchase by returning the registration card indicating the date of purchase and including proof of purchase. There will be a minimal charge to replace consumable components, such as fuses, power transformers, and mechanical cooling devices. The warranty does not cover the product if it is damaged in the process of being installed. Accton recommends that you have the company from whom you purchased this product install it.

THE ABOVE WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY WARRANTY ARISING OUT OF ANY PROPOSAL, SPECIFICATION OR SAMPLE. ACCTON SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. ACCTON NEITHER ASSUMES NOR AUTHORIZES ANY PERSON TO ASSUME FOR IT ANY OTHER LIABILITY.

Customer Remedies

If the product is found to be defective within the first two years from the later of date of purchase or date of manufacture, Accton's entire liability and your exclusive remedy for any breach of warranty, shall be, at its option, to repair or replace the product at no charge except as set forth below. If the product is found to be defective after two years from the later of date of purchase or date of manufacture, Accton will charge a process and handling fee, provided that you deliver the product along with a return material authorization (RMA) number either to the company from whom you purchased it or to Accton. Accton warrants the repaired or replaced product to be free from defects in material and workmanship for the remainder of the original product's warranty period. Consumable components are warranted only for two years.

Return Process

Before you may return any Accton product to Accton, you must request an RMA number by calling, FAXing or writing Accton's Service Department at the address listed below. If you ship the product, you must assume the risk of damage or loss in transit. You must use the original container (or the equivalent) and pay the shipping charge. Accton may replace or repair the product with either a new or reconditioned product, and the returned product becomes Accton's property. At Accton's sole discretion, Accton will issue a credit for either a comparable replacement Accton product or credit the original purchase price towards the purchase of any Accton product for any unrepairable, defective product.

This warranty does not cover replacement of products damaged by abuse, accident, misuse, neglect, alteration, repair, disaster, improper installation or improper testing.

ACCTON SHALL NOT BE HELD LIABLE FOR ANY LOSS OF PROFITS, LOSS OF USE, INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES CAUSED BY THE USE OF THIS PRODUCT OR INABILITY TO USE IT, EVEN IF THE COMPANY OR ACCTON HAS BEEN ADVISED OF SUCH LIABILITY OR OTHER SPECIAL CLAIMS.

If you purchased this product in the USA, be aware that some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may have other rights which vary from state to state. All parts or components contained in this product are covered by Accton's Limited Lifetime Warranty for this product. The product may contain fully tested, recycled parts, warranted as if new.

For warranty information:

All territories except North and South America:
Accton Technology Corporation, International Headquarters
No. 1, Creation Rd. III, Science-based Industrial Park, Hsinchu 300, Taiwan, R.O.C.
Phone: 886-3-5770-270 Fax: 886-3-5770-267 BBS: 886-3-5770-654

North and South America:
Accton Technology Corporation, USA Headquarters
1962 Zanker Road, San Jose, CA 95112, U.S.A.
Phone: 408-452-8900 Fax: 408-452-8988 BBS: 408-452-8828

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Hsinchu: Phone: 886-3-5770-270,
Fax: 886-3-5770-267, 886-3-5775-541
BBS: 886-3-5770-654
Taipei: Phone: 886-2-577-1220 to 9
Fax: 886-2-577-0816

Accton USA,
1962 Zanker Road,
San Jose, CA 95112, USA
Phone: 408-452-8900, 408-452-8080
Fax: 408-452-8988
BBS: 408-452-8828
FAST FAX: 408-452-8811

Accton UK,
The Mill Horton Road,
Stanwell Moor,
Staines. Middx. TW19 6BJ United Kingdom
Phone: 44-1753-687677, 44-1753-680109
Fax: 44-1753-689010

Accton Australia,
Level 6, 10 Help Street,
Chatswood, N.S.W. 2067, Australia
Phone: 61-2-9410-9860
Fax: 61-2-9410-9861
BBS: 61-2-9410-9862

Accton Japan,
Kano Bldg. 7F,
1-25-1 Nishi-Gotanda,
Shinagawa-ku,
141 Tokyo, Japan
Phone: 81-3-3495-1351
Fax: 81-3-3495-1352

Ordering Information

- **SwitchHub-7s** (ES2007-TX) 7-port Fast Ethernet Switch

Glossary

10BASE-T

IEEE's specifications for 10 Mbps Ethernet using twisted-pair cable (Category 5 100Ω STP or UTP). The maximum length of cable for a point-to-point connection is 100 meters.

100BASE-TX

IEEE's specifications for 100 Mbps Ethernet using twisted-pair cable (100Ω STP or UTP). The maximum length of cable for a point-to-point connection is 100 meters.

Collision

A condition in which two packets transmitted over a medium interferes with each other. Their interference makes both unintelligible.

Configuration

The way to set up a computer, server, or local area network.

Connection

A logical binding between two or more users of an interconnection service.

Daisy-Chain Port

An MDI RJ-45 port used to cascade compatible devices in a daisy-chain configuration using straight-through twisted-pair cable. To cascade to another device, you may either use the daisy-chain port, or cascade the two devices by running crossover cable between MDI-X station ports on both devices.

Ethernet

A network communication system developed and standardized by DEC, Intel, and Xerox, using baseband transmission, CSMA/CD access, logical bus topology, and coaxial cable. The successor IEEE 802.3 standard provides for integration into the OSI model and extends the physical layer and media with repeaters and implementations that operate on fiber optics, broadband, and twisted-pair.

IEEE 802.3 Standard

Standard for the physical and electrical connections in local area networks developed by the IEEE. The IEEE 802.3u standard covers these same issues for 100 Mbps networks.

LED

Light emitting diode on the front panel of the SwitcHub used for monitoring a switch or network condition. An LED display corresponds to a switch condition.

Local Area Network (LAN)

A group of interconnected computers and support devices.

MDI Port (Medium Dependent Interface)

MDI is the IEEE standard for the UTP interface to 10BASE-T. This RJ-45 port can be used with straight-through cable to connect the switch to a network interconnection device, such as another switch or router. Pin-out assignments are shown in Appendix B.

MDI-X Port (Medium Dependent Interface - Crossed)

This RJ-45 port, which crosses the receive and transmit signals internally, can be used with straight-through cable to connect the hub to any workstation or server that has a properly installed network adapter card. Pin-out assignments are shown in Appendix B.

RJ-45 Connector

Most common terminator for twisted-pair wiring.

Shielded Twisted-Pair (STP)

Twisted-pair wire covered with an external aluminum-foil or woven copper shield designed to reduce excessive noise pick up or radiation. The STP cable refered to in this manual is also sometimes called screened twisted-pair (ScTP). Its impedance is 100Ω and has the same pin assignment as UTP. This cable should not be confused with the older 150Ω cable type designed by IBM.

Station Port

Ports which are used for connecting the hub to any workstation or server that has a properly installed network adapter card.

Unshielded Twisted-Pair (UTP)

Cable composed of two insulated wires twisted together to reduce electrical interference; used in common telephone cord.

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